EFFICACY STUDY DATA EVALUATION RECORD (COMPLETED STUDY)

Primary Reviewer's Name/Title: Eric Bohnenblust, Entomologist

STUDY TYPE:	PRODUCT PERFORMANCE [810.3900]
MRID:	48347401. Silica Dust Formulation Efficacy for Control of Bed Bugs (*Cimex lectularius*)
DP BARCODE:	424324
DECISION NO:	491886
SUBMISSION NO:	961281
SPONSOR:	Rockwell Labs Ltd.
TESTING FACILITY:	Virginia Tech, Dept. of Entomology
STUDY DIRECTOR or INVESTIGATOR:	Timothy McCoy and Dini Miller
SUBMITTER:	EP Naturals
STUDY COMPLETED:	September 10, 2010
CONFIDENTIALITY CLAIMS:	none
GOOD LABORATORY PRACTICE:	Not GLP compliant
TEST MATERIAL:	[7655-1] [Crop Guard] [Diatomaceous Earth] [Dust] [1-5 lb per 1000 sq. ft. among various other uses]
PROPOSED EFFICACY CLAIMS ON LABEL:	[Kills bed bugs]

Efficacy Study Data Evaluation Record

Title: Silica Dust Formulation Efficacy for Control of Bed Bugs (*Cimex lectularius*)

Purpose/Objective: To evaluate the efficacy of silica dust against bed bugs.

Materials and Methods

Test Location: Blacksburg, VA

Test Material(s): Rockwell Labs Silica Dust

Test Dose/Application Rate: 2 oz. per 100 ft^2

Positive Control/Reference Standard, if used: N/A

Test Species Name, Life Stage, Sex and *Age*: Epic Center Strain bed bugs, adults and nymphs

Test System:

Describe how each experiment was conducted:

List the treatments including the untreated control:

*Bed Bug Adult and Nymph Assays***:** Using a small brush, **s**ilica dust was applied to hardboard panels at a rate of 2 oz. per 100 ft^2. After the board panels were dusted, petri dishes with bed bugs were inverted over the panels to confine the bed bugs on the substrate. Tests were replicated four times with 10 adults or nymphs per replicate. The methods mention untreated controls, however no control data are presented.

Bed Bug Egg Assay: Groups of pyrethroid resistant bed bug eggs deposited on filter paper discs were treated with silica gel using a small brush at a rate of 2 oz. per 100 ft^2. Control treatments were lightly brushed with a clean brush to simulate dust application. Nymphs were confined on dusted panels until 100% mortality was observed.

Describe test arenas and/or apparatus (include site description and location).

Method(s) of application: Dusting with a brush

Number of replicates per treatment: 4

Number of individuals per replicate: 10

Length of exposure to treatment (time in seconds, minutes or hours): Were tested specimens transferred to clean containers? No

Experimental conditions (state relative humidity, temperature, and photoperiod): 27˚C and 55% RH, 12:12 L:D

Dead bed bugs were assessed to determine LT_{90} and bed bug eggs were assessed for hatching.

Data Reported

Results

The LT_{90} for bed bug adults was 13.3 hours, and for nymphs was 9.3 hours, however no control data were presented in these studies. Bed bug egg mortality was not different from the control groups and silica dust did not appear to have any noticeable control on egg hating.

Conclusions

This study does not support claims against bed bugs because control data were not provided, there was no efficacy against eggs, and the EPA does not accept the LT_{90} parameter as a reliable determination of efficacy against bed bugs.

Recommendations

Claims against bed bugs should be removed from the label.